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ABSTRACT

In order to determine the longitudinal persistence of two major personality dimensions, namely Apathy-Withdrawal versus Interest-Participation (Factor 1) and Anger-Defiance versus Conformity-Compliance (Factor 2), and to test the hypothesis that the social-emotional functioning of the preschool child is predictive of later intellectual-academic performance, 323 children previously tested were retested 12 to 18 months later after entering first grade. Results showed a relationship between Apathy-Withdrawal (Factor1) and poor academic achievement, but indicated no relationship between Anger-Defiance (Factor 2) and academic performance. Analysis also revealed that one type of disturbed social-emotional functioning (Apathy-Withdrawal) is predictive of deficient intellectual functioning. Various hypotheses were discussed involving the influence and relationships of background-demographic variables of age, sex, ethnic background, family size and stability, parental levels of education and occupation, family income, and school environment. (DD)

PREDICTION OF FIRST GRADE SOCIAL-EMOTIONAL AND INTELLECTUAL FUNCTIONING [1]

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PREDICTION OF FIRST GRADE

SOCIAL-EMOTIONAL AND INTELLECTUAL FUNCTIONING

The purpose of this paper is to report our progress on NIMH #15588. In work carried out under a previous grant (NIMH #10341), we developed two instruments for teachers to use in rating children, the Kohn Social Competence Scale (KSC)* and Kohn Problem Checklist (KPC). Factor analysis of the KSC revealed two major factors:

KSC-I: Interest-Participation vs. Apathy-Withdrawal
KSC-II: Cooperation-Compliance vs. Anger-Defiance

Factor analysis of the KPC revealed two similar major factors:

KPC-I: Apathy-Withdrawal
KPC-II: Anger-Defiance

The KSC factors are bipolar, reflecting the full range of social-emotional competence, from good to poor. The KPC factors, however, are unipolar, as the instrument was designed to reflect problems rather than the full range of social-emotional functioning.

The four factors have been shown to be adequately reliable between raters and rating occasions. In work to date, we have shown that they are meaningfully related to these variables: intellectual constriction, peer interaction, and teacher's global ratings of social-emotional functioning (Kohn, 1968). A practical advantage of the KSC and KPC is that they utilize a neglected resource, the teacher's knowledge of her students, and

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* Abbreviations used in the study are listed in Table 1. For ease of reference, Table 1 has been put on a foldout sheet and is bound as the last table in the report.

provide an inexpensive method for large-scale screening of preschool children.

This report presents one phase of the work under NIMH #13538, which had the following major aims:

(a) to determine the longitudinal persistence of the two major competence and problem factors identified in our previous work, by following a group of underprivileged children, ages 3, 4 and 5 (children in New York City Day Care Centers) over a two-year period;

(b) to determine the prevalence, incidence and remission rates in the same group of children; and

(c) to determine the relationship between the competence and symptom levels of the five-year-olds as measured in Day Care and their subsequent level of conduct and achievement in their first and second grade in elementary school.

The present report deals with the last of these three aims. The two major hypotheses tested in the present report were:

(a) The two major personality dimensions identified on the KSC and KPC will show persistence from preschool to elementary school.

(b) The social-emotional functioning of the preschool child is predictive of later achievement and academic performance. Specifically, we

predicted that children scoring high on KSC-I and KPC-I would be handicapped in their intellectual functioning. The basis for this hypothesis will be discussed in a later section of the paper.

I. Subjects

A. Data Collection

We were successful in obtaining a 20% random sample (N=1232) of all children in Day Care Centers of the Division of Day Care of the New York City Department of Social Services. By letter, Miss Muriel Katz, director of the Division of Day Care, contacted each of the directors of the 92 Day Care Centers. The letter described the project, its potential contribution to child development and to Day Care, and asked the directors and the teachers to cooperate in the study. Two Day Care Centers declined to participate because of previous commitments to other research projects.

Subsequently, we contacted each director by telephone and discussed the study with her. With her cooperation, we randomly selected the sample children from her classroom lists.

The New York City Department of Health limits the number of children permitted in each Day Care Center by age. The limit is 22 for five-year-olds, 22 for four-year-olds and 15 for three-year olds. In order to have an equal number of children from each age group, we selected a higher proportion of three-year-olds than of four-year-olds and of five-year-olds. We subsequently learned that because of heavy enrollment, some of the four-year-olds had been assigned to three-year-old groups. Our final sample consisted of 341 three-year-olds, 473 four-year-olds and 428 five-year-olds.

B. Characteristics of Subjects in Sample

The background characteristics of the children and their families are shown in Table 2.* The Table shows the number of subjects in the three age groups, identified as Group A, B and C.

The sample was almost equally divided between boys and girls. Only 50% of the children came from intact homes. In 52% of the homes, the father was the head of the household, and in 45% the mother was head of the household. Someone other than the child's natural parents was head of the household in 3% of the homes.

Most of the children were Negro (56%), 27% of the children were white and 16% were Puerto Rican. (We used the race of the head of the household as the basis for classification.)

Forty-five per cent of the mothers had not completed high school, 37% had completed high school, and 12% had had some college.

Nine per cent of the families had incomes below $3,000 and approximately 45% had incomes below $5,000. Nineteen per cent of the families received welfare benefits; 14% received some other form of assistance and 67% had earned income only.

C. Group A Follow-up

Of the 1200 children in the original study, 423 were old enough to enter elementary school in September, 1968. These children are the focus of the present study. The distribution of rated and unrated cases is shown in Table 3.

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* The data were collected by counselors attached to the Day Care Centers at the time parental consent was obtained for having children participate in the study. When parental consent was not given, all data collection was terminated.

We were disappointed at the rate of attrition (24.5%). The prolonged strike in the New York City public schools in the Fall of 1968 was the main cause. The Day Care directors usually know which elementary schools the children from their centers are attending, but lost track of many children. Also, we did not have enough time for recontacting the public school teachers who had not responded to the initial mailing.

In order to test for selective attrition, we compared the initial (Rating 1) social-emotional functioning scores of the group on whom follow-up data was secured and the group not rated (drop-outs). The results are presented in Table 4. The means of the drop-out group do not differ significantly from the means of the children on whom data was secured in the first grade (t 1.00). These results suggest that attrition was not on a selective basis.

II. Instruments Used

Data on the subjects in Group A were collected both during their attendance in Day Care and during the first year of elementary school. In the Day Care data collection, the children's social-emotional functioning was assessed and background data were obtained from their parents. During the first year in elementary school, their social-emotional functioning was also assessed. In addition, we obtained data on the children's readiness for school, on their first grade achievement, and on the characteristics of the schools they attended. After describing the data collection instruments, we will outline the rating occasions when the various kinds of data were collected.

A. Social-Emotional Variables (Day Care)

1. KSC and KPC. In previous work in this laboratory, we developed two instruments, the KSC and KPC (Kohn & Silverman, 1966a; Kohn & Silverman, 1966b). These two instruments were used to assess social-emotional functioning in Day Care.

2. Revision of instruments. In prior work, we had the opportunity to train the teachers using the two instruments. Since the present study covered 90 Day Care Centers from every area of New York City, and all of our contacts with teachers were by mail, we had to be certain that the instruments were self-administering.

In order to achieve this goal the cooperation of teachers from four Day Care Centers was enlisted. Fifteen head teachers (HT) and assistant teachers (AT), working in fifteen classrooms were asked to

complete the KPC and KSC on their children. Discrepancies between pairs of teachers were discussed in meetings with the teachers. Often the discrepancies arose from ambiguity of terms or complex phrasing of items which allowed for alternate interpretations. All items were rewritten to minimize these sources of error. These discussions also revealed misunderstandings about the rating instructions as a whole, and the instructions for rating were rewritten to minimize ambiguity. Upon completion of these revisions, the KPC and KSC were considered ready for the present study.

3. Psychometric characteristics of the KPC and KSC. In Day Care, each child was rated by the two full-time teachers in his classroom, giving us an opportunity to obtain interscorer reliabilities for the instruments. Table 5 shows the interscorer reliabilities found at R1 and R2 of the present study and also in a previous study (Kohn, 1968). For each occasion, both uncorrected and estimated (Spearman-Brown) reliabilities between HT and At are given.

Inspection of the table indicates that the reliability achieved in the present study is approximately the same as in the previous study. We had hoped to improve the reliability of the instruments through clarification of items and instructions. The present data were obtained without personal contact with teachers, however, which may have tended to offset any improvement of reliability by editorial changes in the instruments. While it is regrettable that the overall level of reliability did not rise, the achieved level is high enough to indicate that the instruments can be used for large-scale surveys of children without prior training of teachers.

For purposes of this study, we pooled scores between teachers, and subsequently between instruments, as shown in Table 6. The pooling of scores between teachers is an obvious way of boosting reliability for the scores. As Table 7 demonstrates, the cross-instrument correlations for the two rating occasions are fairly high. PT-KPC-I correlates -.74 and -.69 with PT-KSC-I, and PT-KPC-II correlates -.82 and -.81 with PT-KSC-II. In the interpretation of the cross-instrument correlations, please note that high KSC scores indicate high competence and high KPC scores indicate high problems. Thus, the cross-instrument correlations are negative in sign. Accordingly, we felt justified in taking the further step of pooling scores between instruments in order to obtain Pooled Scaled Scores for Factor I (PSF-I) and Factor II (PSF-II). Before combining the scores, we converted the PT-KPC and PT-KSC raw scores to standard scores and reversed the sign of the PT-KSC scores. Thus, high PSF scores, like high KPC scores, indicate high disturbance.

Table 8 shows the cross-factor within-scale correlations. These correlations, particularly the within-KSC correlations for R2, are higher than in our previous study (Kohn, 1968), though not high enough to vitiate use of the scales. It was during data collection for R2 that we became acutely aware of decreased motivation among the teachers participating in the ratings. Beginning with data collection subsequent to R2, we paid teachers a small fee for participating, which has helped keep teacher motivation high.

Table 9 shows the estimated reliability of the PSF scores for R1 and R2 of this study and for our previous study. These reliabilities are acceptably high (r = .83 and .76 for PSF-I, and .87 and .84 for PSF-II). In our prior study, the corresponding reliabilities were .85 and .89.

In summary, the reliability of the various scales is adequate. The reliability of the final PSF scores are slightly lower than in our previous study, but are high enough to warrant use of the scales in large-scale screening.

B. Social-Emotional Variables (Elementary School)

1. Peterson Problem Checklist and Schaefer Classroom Behavior Inventory. The first-grade teachers completed two teacher-rating instruments, the Peterson Problem Checklist (PPC) and the Schaefer Classroom Behavior Inventory (SCB) which are appropriate for the assessment of social-emotional functioning of children in the primary grades. We assumed that these instruments measure the same two major dimensions (at the grade school level) as the Competence and Symptom Checklist (at the preschool level.)

Factor analysis by Peterson (1961) showed that his Problem Checklist assessed two major dimensions of pathology which he labeled:

Personality Problems (PPC-I) and

Conduct Problems (PPC-II).

Factor analysis by Schaefer et al (1965) showed three major dimensions:

Introversion - Extroversion (SCB-I),

Adjustment - Maladjustment (SCB-II), and

Task Orientation (SCB-III).

Inspection of the two instruments and Peterson's and Schaefer's reports on their findings indicated the congruence among factor scores, as shown in the following Table:

Factor	INSTRUMENTS			
	Preschool		Elementary School	
	KSC	KPC	PPC	SCB
I	Interest - Participation vs. Apathy - Withdrawal	Apathy - Withdrawal	Personality Problems	Extroversion vs. Introversion
II	Cooperation - Compliance vs. Anger - Defiance	Anger - Defiance	Conduct Problems	Adjustment vs. Maladjustment
III	-	-	-	High vs. Low Task Orientation

We had no specific hypothesis with regard to the SCB-III, but since Schaefer found SCB-II and SCB-III to be correlated (r = .60), we assumed that KSC-II and KPC-II would also be correlated with SCB-III.

2. Psychometric characteristics of the PPC and SCB. In the first grade each child was rated by only one teacher, so interrater reliabilities could not be calculated on either the PPC or SCB. Peterson (1961) found an interscorer reliability of .80 in his study. In the present study, we found a .41 correlation between PPC-I and PPC-II. Peterson does not present correlations between factor scores found in his study, so a comparison is not possible. The correlations between SCB factor scores were:

SCB-I vs. II .26

SCB-I vs. III .14

SCB-II vs. III .52

These correlations are similar to those reported by Schaefer. (personal communication)

C. Intellectual Functioning. Intellectual functioning was assessed with the Metropolitan Readiness Test (MRT) and Elementary School Academic Rating (EAR). (A third measure of intellectual functioning is yet to be collected. Our research plan calls for testing of the public school children on the Metropolitan Achievement Test near the end of their second grade, in March, 1970.)

1. Metropolitan Readiness Test (MRT). A slight variant of the MRT, the New York State Readiness Test, was administered. It is identical with the regular edition except for omission of the Draw-a-Man test (an optional feature) and the inclusion of a Readiness Inventory (not available for this report). The MRT was devised to measure the extent to which school beginners have the abilities which contribute to readiness for first-grade instruction. The six subtests included in the test are as follows:

(a) Word Meaning, a 16-item picture vocabulary test. The examiner names a word, and the pupil selects a picture illustrating it from a set of three pictures.

(b) Listening, a 16-item test of ability to

comprehend phrases and sentences instead of individual words. The examiner describes a situation and the pupil selects a picture illustrating it from a set of three pictures.

(c) Matching, a 14-item test of visual perception involving the recognition of similarities. The pupil marks one of three pictures which matches a given picture.

(d) Alphabet, a 16-item test of ability to recognize lower-case letters of the alphabet. The pupil chooses a letter named from among four alternatives.

(e) Numbers, a 26-item test of number knowledge.

(f) Copying, a 14-item test which measures a combination of visual perception and motor control.

The tests were administered by the New York City Board of Education to all children attending public schools. MRT scores were not available for the children who entered parochial or private schools after leaving Day care.

2. Elementary School Academic Rating. (EAR) We also asked the children's first-grade teachers to furnish a global academic rating. This rating was completed towards the end of the first year of school and was intended to reflect the teacher's perception of the child's intellectual functioning. It was assumed that this measure might be biased to an unknown extent.

D. Demographic Data

Two sets of demographic data were collected:

(a) the Background Data Form (BDF) was completed by Day Care counselors and provides personal and family characteristics of the children; and

(b) the School Characteristics Form was completed from data available at the New York City Board of Education and provides data on characteristics of the public schools attended by the children.

The variables included in the BDF and SCF will be described in detail in the section on Results.

E. Schedule of Data Collection

The schedule of data collection is shown in Table 10. Data on the Day Care instruments were obtained twice during the children's last year in Day Care. At the beginning of data collection, BDF's were also completed on each child. The MRT was administered by the New York City public schools during the first month after the beginning of school. Toward the end of the children's first year in public school, the PPC, SCB, EAR and SCF data were collected.

III. RESULTS

A. Persistence of Social-Emotional Functioning

1. Persistence and congruence hypotheses. One of the major hypotheses of the study concerned the persistence of personality trends. We predicted that children scoring high on Apathy-Withdrawal and Anger-Defiance at the preschool level would continue to score high on these dimensions after entering elementary school.

We further hypothesized that the personality dimensions measured by the PPC and SCB would be congruent with the two dimensions measured at the preschool level on the KPC and KSC. Therefore, we predicted that children high on KPC-I and KSC-I would score high on PPC-I and SCB-I, and similarly for Factor II.

We had no specific prediction with regard to SCB-III, but because of the correlation between SCB-II and SCB-III (r = .60), we expected SCB-III to correlate with KPC-II and KSC-II.

Confirmation of the hypothesis of persistence of social-emotional functioning would simultaneously confirm the hypothesis about the congruence of the respective factor dimensions on the KPC, KSC, PPC, and SCB.

2. Correlation between Day Care and elementary school social-emotional instruments. These data are presented in Table 11. Part B of the table shows the correlations of separate KPC and KSC scores with the PPC and SCB scores. Part A of the table shows the correlations of the PSF scores with the

PPC and SCB scores. Comparison of Part A with Part B will show that the PSF yields the same pattern of correlations as the KPC and KSC separately. This justifies our decision to derive the PSF by pooling scales from the two Day Care instruments. From this point, our discussion will focus on the relation of the PSF with the various first grade ratings.

For the Peterson instrument, the highest correlations of the PSF, from both rating occasions, are those between PSF-I and PPC-I and between PSF-II and PPC-II. Similarly, for the Schaefer instrument, PSF-I is more highly correlated with SCB-I than with SCB-II and SCB-III; and PSF-II is more highly correlated with SCB-II than with SCB-I. In our data, PSF-II is about as highly correlated with SCB-II as with SCB-III.

The predictions which we made about the persistence of personality trends are well supported by the findings. Preschool children who were high on Apathy-Withdrawal tend, in first grade, to score high on PPC-I (Personality Problems) and low (introverted) on SCB-I (Extroversion-Introversion). And children who were high on Anger-Defiance tend to score high on PPC-II (Conduct Problems) and low (maladjusted) on SCB-II (Adjustment-Maladjustment). Children high on PSF-II also tended to score low on SCB-III (Task Orientation).

Thus, essentially identical "personality dimensions" are measured by PSF-I, PPC-I, and SCB-I, on the one hand, and by PSF-II, PPC-II, and SCB-II, on the other hand. In referring to these personality dimensions, we prefer to use the labels derived

from our research which more usefully describe the psychological meaning of the two major factors for our purposes (see Kohn, 1968).

Schaefer's terms for his Factor I (Extroversion vs. Introversion) suggest different styles of being normal, but results presented earlier in this paper show that the Introversion side of Schaefer's Factor I correlates with disturbance in Day Care children. Peterson's Factor I (Personality Problems) is a unipolar factor, like our KPC-I, and he has also indicated that it reflects disturbance. Our findings show that the nature of the disturbance can be meaningfully described as Apathy-Withdrawal, and that it may be contrasted with Interest-Participation from the healthy side of the dimension.

Schaefer's Factor III (High vs. Low Task Orientation) is not reflected in our measures of preschool children. The emergence of this factor in elementary school may be partly explained by the fact that the elementary school situation, being more task-oriented, calls forth new response patterns, revealing a new "personality dimension" in children. In view of the relation of this third factor to achievement, to be shown later in this report, Schaefer's label seems to be in line with our findings.

3. Congruence Hypothesis: Further cross-sectional evidence. In Table 12, we have displayed the cross-sectional correlations for the three rating occasions. Part A of the table shows the correlations between instruments in Day Care which are repeated here for convenience, and Part B shows the correlations between instruments in elementary school.

The data indicate that there is a conceptual equivalence among the factors, in line with our original predictions. The correlations among the respective factor scores from assessments made at the same time are naturally higher than assessments made at different times, and the correlations between corresponding measures of Factor I and Factor II in this table are higher than the longitudinal correlations shown in Table 11.

Though the KPC and KSC were prepared for entirely different purposes, Part A of the table shows the essential identity of the two major factors on the two instruments. In Part B of the table, it can be seen that PPC-I is most highly correlated with SCB-I, and PPC-II is correlated highly with SCB-II. PPC-II is correlated about as highly with SCB-III as with SCB-II, which we had not predicted. As we have indicated, however, the correlation between SCB-II and SCB-III in our data is .52, which may partly explain why the cross-instrument correlations in elementary school are not as clear-cut as those in Day Care. In addition, we found SCB-II and PPC-I to be more highly related than other cross-factor correlations. However, inspection of the intercorrelations we obtained among subscales of the SCB reveals that one SCB-II subscale (kindness) is much more highly related to the SCB-I subscales than to any of the SCB-II subscales. This finding of a "misplaced" subscale may account for the somewhat inflated correlation between SCB-II and PPC-I. In future work this subscale will be dropped.

The time of a child's entry into school is also an important transition period. Our observations indicate that Day Care and elementary school teachers have different frames of reference.

The Day Care teachers encourage their children to be vocal (within limits), participative, and enthusiastic, while the elementary school teachers seem to be more concerned with keeping order and keeping the children focused on their studies. As we have pointed out in connection with Schaefer's third factor, the elementary school situation, being more task-oriented, may make task-orientation newly relevant for children as they adjust to elementary school.

We have additional evidence concerning the change in frames of reference for Day Care and elementary school teachers. We asked both sets of teachers to make global ratings of "overall functioning" on a three-point scale from "well functioning" to "poorly functioning." Poorly functioning was defined as follows:

> "A child who is having more difficulty than most other children of his age in functioning in the school situation. Poor functioning might manifest itself in many ways, such as: 1. Problems in getting along with teachers and adults (overdemanding of the teacher's attention; or completely rejecting of her). 2. Difficulties in relating to other children (bossy and antagonistic, or very withdrawn and frightened). 3. Inability to sustain any prolonged interest. In summary, a child who in comparison to others presents problems and exhibits signs of disturbance."

These ratings show that Day Care teachers consider the child who is apathetic and withdrawn to be more disturbed (r = .70 between PSF-I and global rating at R1) than the child who is angry and

defiant (r = .57 between PSF-II and global rating at .01). In elementary school, however, the pattern of these correlations reversed, and the child who is high on Anger-Defiance is rated as more disturbed (r = .70 between PPC-II and global rating, and - .61 between SCB-II and global rating) than the child who is high on Apathy-Withdrawal (r = .57 between PPC-I and global rating, and - .44 between SCB-I and global rating).

B. Prediction of Academic Functioning and Achievement

The second major hypothesis of the study was that the social-emotional functioning of the preschool child would be predictive of the child's academic functioning and achievement. The psychoanalytic literature presents a great deal of clinical evidence on the relationship between emotional disturbance and intellectual functioning. However, psychoanalytic hypotheses are difficult to put into a testable framework. Harris, (1961) working within the psychoanalytic frame of reference, carried out an empirical study of 100 learners and 100 non-learners (ages 6 to 10) who were referred to the Chicago Institute for Juvenile Research. Harris found that failure to learn was associated with the extremes of aggressiveness and submissiveness. He also found that too little anger had a greater effect on learning disability than too much anger. The overly-aggressive non-learner appears to be intellectually brighter than the overly-submissive non-learner (Harris, 1961, pp. 81 - 82). Harris offered several theoretical interpretations of his findings, but did not offer a unitary,

testable set of hypotheses. Harris's study was of a cross-sectional nature. In cross-sectional studies, cause and effect problems may be difficult to untangle; children may develop emotional problems because of learning difficulties as well as the reverse.

DeHirsch (1966), who adheres to a developmental and physiological point of view, believes that developmental factors such as immaturity of the perceptual or motor systems are the cause of learning difficulties, and that these can be identified before a child's entry into school. Children with these kinds of learning handicaps may subsequently become emotionally disturbed because of their inability to learn, meet expectations, and keep up with other children. Unlike DeHirsch, we assume a child's social-emotional functioning, before formal schooling begins, is predictive of the child's intellectual functioning and achievement. In spite of the extensive theorizing, particularly in the psychoanalytic literature, there are very few empirical studies on the relationship between preschool social-emotional functioning and later intellectual functioning and achievement.

In a review of the literature on learning difficulties, Batesman (1966) stated that to her knowledge there was no current research which uses "emotional disturbance as a predictive variable." We discovered two studies, both unpublished, which have dealt with the topic. Carrither (1965) found that emotional disturbance in kindergarten-age children was predictive of low reading achievement and of reading disabilities in the first, second,

or third grade. This study, however, had several limitations, including a cumbersome procedure for assessing emotional difficulty and the use of a sample of exclusively upper-middle class children. Conrad and Tobiesson (1966) found that ratings by kindergarten teachers identified 62% of the children who were considered by first grade teachers to have problems. Conrad's definition of problems, however, is too broad to be meaningful, as it includes intellectual limitations, neurological impairments, and reading problems as well as emotional difficulties.

Taking Harris's findings as a point of departure, we had initially hypothesized that preschool children scoring high on Factor I (Apathy-Withdrawal) or on Factor II (Anger-Defiance) would have later learning difficulties. Subsequent findings led us to refine and modify this hypothesis. An initial test of the hypothesis was carried out by Helen Silverman (1968) in a study carried out in this laboratory. Silverman's study confirmed the hypothesis in part. She found that nursery school children who had scored high on Factor I were having later learning difficulty as measured by an achievement test given in the second grade. Surprisingly, however, children scoring high on Factor II did not exhibit problems on the second year achievement test.

Incidental findings from a study of individualized teaching with a therapeutic aim indicated that children scoring high on Apathy-Withdrawal already showed deficiencies in intellectual functioning prior to entering school (Kohn, 1968). Through an adaptation of the Rorschach test, we examined the extent of

stereotyped vs. varied thinking in the children. Children high in Apathy-Withdrawal gave significantly more stereotyped responses than the children high in Anger-Defiance. The high Apathy-Withdrawal child, though not different in number of responses, gave significantly fewer different responses.

These findings suggested the following revision of our original hypothesis: The high Apathy-Withdrawal child is not only inhibited in his action but in his intellectual functioning. The inhibition of activity which the high Apathy-Withdrawal child has developed as a defense against overtly expressing himself, has spread or "generalized" to his intellectual functioning. It is possible that the high Apathy-Withdrawal child is afraid of thinking something that is unacceptable. At this point, however, we have no evidence whether the defect in functioning occurs at the point of information intake, information processing or information output (expression).

Furthermore, we assume that high Apathy-Withdrawal children have difficulty in intellectual functioning which begins at an early age, certainly before entry into school. After entering school, the defective intellectual functioning is expected to produce difficulties in further learning.

1. PSF vs. first grade intellectual functioning. No provisions had been made in our original plan for assessment of the children's preschool intellectual functioning. The Board of Education, however, routinely administers the MRT (described above) to all public school children early in first grade. The

MRT scores were made available to us on subjects in the study. (Unfortunately, since the MRT is administered during the first month of school, we were unable to obtain a comparable measure for children attending parochial or private schools). It is reasonable to assume that it reflects the child's level of functioning prior to school entry.

As a measure of school achievement, we obtained teachers' elementary school academic ratings (EAR) near the end of the first grade. This is a flawed measure, since it reflects the teacher's subjective perception of the child's achievement. As previously indicated, objective achievement data will be collected on these children during the second grade (March, 1970).

The results are presented in Table 13. The table presents the correlation of the PSF scores with MRT subtests, total raw MRT score, and EAR.

PSF-I has consistently higher correlations with four of the six subtests, namely, Listening, Matching, Alphabetical, and Numbering. Two of the subtests, Word Meaning and Copying, have lower correlations with PSF-I; they are significant at the 5% level for R2 only. PSF-I is also significantly correlated with total raw MRT score ($r = -.33$, $p < .001$). PSF-II, as predicted, is not significantly correlated with the total raw MRT score or with any of the subtests.

PSF-I is highly correlated with the EAR ($r = -.34$ and $-.32$, $p < .001$), as predicted. PSF-II is also significantly correlated with the EAR ($r = -.14$, p .02), but only for R1. The correlation

between PSF-II and the EAR was not predicted, and the magnitude of correlation is low.

The findings strongly support our second major hypothesis. PSF-I is a consistently better predictor of intellectual functioning than PSF-II. It is not the aggressive child, but the withdrawn, apathetic, inhibited child whose intellectual functioning is impaired.

2. Correlations of PPC and SCB with measures of intellectual functioning. Further confirmation of the relationship of social-emotional and intellectual functioning may be obtained by examining the correlation of the PPC and SCB with measures of intellectual functioning. According to our hypothesis, PPC-I and SCB-I are congruent with KPC-I and KSC-I; therefore, PPC-I and SCB-I should be significantly correlated with the measures of intellectual functioning. According to Schaefer, SCB-III measures task orientation, and should also be significantly correlated with intellectual functioning.

The data are presented in Table 14, and confirm the hypotheses. PPC-I, SCB-I and SCB-III are all significantly correlated with the MRT (r = - .33, .33, and .36; $p < .001$) and EAR (r = - .43, 42, and .48; $p < .001$). These findings are particularly impressive since SCB-I and SCB-III are not correlated with each other (r = .13). The surprise in this data is that PPC-II and SCB-II are also significantly correlated with the measures of intellectual functioning, though not as strongly. The correlations between PPC-II and SCB-II and the measures of intellectual functioning may be artifactual in

our data, owing to their high correlations--r = - .74 and .52, respectively--with SCB-III. In addition as mentioned above, (p. 18) since SCB-II apparently contains a subscale score more appropriately associated with SCB-I, this may also contribute to the correlations between SCB-II and the intellectual measures.

C. Prediction of Social-Emotional Functioning and Intellectual Functioning

Background data were collected on each of the subjects at the time of R1. Major reasons for collecting these data were:

(a) to provide a description of the background characteristics of children in the sample; and

(b) to have them available as control variables, since demographic variables have been found to correlate with both social-emotional and intellectual functioning.

For the present report, we wanted to test a number of hypotheses about the relationship of background variables to social-emotional and intellectual variables. In a later and more stringent analysis, we will use the background variables as control variables, to determine the effect of social-emotional variables on intellectual-academic variables, with background variables partialed out.

1. Age. The data are shown in Table 15.

(a) Social-emotional variables. In previous work, we found social competence to be moderately correlated with age. In the present age-restricted group, we did not expect to find

any substantial correlations.* The expectation was confirmed.

(b) Intellectual-academic variables. Again, we did not expect fo find substantial correlations owing to the age-restricted range of the sample. The expectation was confirmed.

2. Sex. The data are shown in Table 16.

(a) Social-emotional variables. Innumerable studies have found boys to be higher than girls on aggression, which corresponds to our Factor II (Anger-Defiance). In our previous work, we found that boys were significantly higher on Factor II than girls; we expected the same relationship to hold. At the pre-school level, boys show more Anger-Defiance (r = - .16 and - .18, $p < .01$) and also slightly more Apathy-Withdrawal (r = - .11, N.S. and - .12, $p < .05$) than girls. The relationship of sex to Anger-Defiance is consistent with our previous findings. If the relationship of sex to Apathy-Withdrawal holds up in later work, it would suggest that with increasing age boys tend to become more disturbed on both major dimensions of disturbance.

The first grade measures show much the same pattern as the preschool measures. The overall trend is for girls to function better, being lower on Conduct Problems (PPC-II) and higher on three Schaefer measures.

(b) Intellectual-academic variables. Girls have been consistently found to score higher than boys on these variables. In our data, sex is highly correlated with the EAR (r = .27); the

*In a previous study (Kohn, 1968) we found a highly significant age-race interaction which was difficult to explain. We will test for this interaction effect in a later phase of the present work.

correlation of sex with the MRT is in the same direction (r = .12), but not significant. Apparently teachers attribute higher achievement levels to girls than to boys.

3. Ethnic background. The data are shown in Table 17.

(a) Social-emotional variables. We did not expect ethnicity to be related to social-emotional functioning. As shown in the table, the children from the three ethnic groups, Negro, Puerto Rican and White, do not differ significantly in social-emotional functioning at the pre-school level. At the first grade level, however, a slight difference emerges on SCB-II. The direction of the correlations suggests that at the end of the first year of elementary school, Negroes are showing signs of poor adjustment compared to the other groups; however, a great deal of further data is needed for corroboration.

(b) Intellectual-academic variables. We expected children with a foreign language background--principally Puerto Rican children, in our study--to have lower scores on the measures of intellectual-academic functioning. As indicated by the MRT, Puerto Rican children perform significantly more poorly than other children (r = .17) and Whites perform significantly better (r = - .16), indicating that Negro children's level of performance is intermediate. (The direction of signs is a little confusing, here. Since the ethnic variables were coded with one ethnic group as 1 and all others as 2, a positive correlation with the MRT indicates that the single ethnic group performs more poorly on the MRT.)

Note, however, that the EAR, reflecting the teachers' global assessment of children's academic functioning, shows no significant correlations with any of the ethnic variables. The teachers' global assessments are not in line with results of the more objective measure of the MRT.

4. Day Care attendance. The data are shown in Table 18.

(a) Social-emotional variables. In our previous work, we found length of time spent in Day Care to be mildly but significantly correlated with both Factor I and Factor II. Children attending Day Care for longer periods of time tended to have higher Interest-Participation, but also higher Anger-Defiance. We expected to observe the same result in the current sample, and the expectation was confirmed in the R1 data. (The effect appears to be sharply reduced in the R2 data. At R2, the group was more homogeneous with respect to Day Care attendance since, at that time, all of the children had been in Day Care for a minimum of six months.) The magnitude of the relationship between Day Care attendance and social-emotional variables is not large, but exactly replicates our previous results.*

*The finding suggests that the Anger-Defiance dimension is curvilinearly related to optimal functioning; an extreme degree of either Cooperation-Compliance or Anger-Defiance may indicate disturbance, with optimal functioning at some intermediate point.

There was no correlation between length of attendance in Day Care and the first grade measures of social-emotional functioning. It seems that whatever changes in functioning due to longer enrollment in Day Care do not carry over into first grade of elementary school.

(b) Intellectual-academic variables. We had no hypothesis with respect to the intellectual-academic variables as a function of length of attendance in Day Care. The correlations with the MRT and EAR are not significant.

5. Number of siblings. The data are shown in Table 19.

(a) Social-emotional variables. In our previous study, we found that children from larger homes were more cooperative and compliant. We assumed that the findings indicated that a child had to accomodate more in a larger family, to enable the family group to function efficiently, and expected similar results in the present study. As the data indicates, number of siblings correlates significantly with high Apathy-Withdrawal in the present study, for both preschool (PSF-I) and elementary school (SCB-I) measures. The correlations with Cooperation-Compliance vs. Anger-Defiance are not significant, however, contradicting our earlier findings.

(b) Intellectual-academic variables. A number of studies reported in the literature have shown that children from larger families are disadvantaged, compared to children from smaller families, on intellectual-academic measures. We expected similar results in our study. The data confirm the expectation,

with number of siblings being negatively correlated with the MRT ($r = -.15$, $p < .05$) and the EAR ($r = -.20$, $p < .01$).

6. Family stability. The data are shown in Table 20. As measures of family stability, we used intactness (intact vs. broken), head of household (father vs. mother), a rating by the Day Care counselor who completed the BDF, and whether the mother or father (if living with the child) had been chronically ill.

(a) Social-emotional variables. We predicted that the first four measures of family stability would be related to Factor II. This prediction follows from previous findings, including our own (Kohn, 1968), which shows that anger, defiance, hostility, and acting-out increase for children who have experienced an unstable home situation. We also expected an illness of one of the parents, particularly the mother, to have a disruptive effect and lead to an increase in anger and defiance.

For R1, PSF-II correlates with all four of the key measures, strongly supporting the predictions. The relation to father's illness is not significant. Similarly, in the elementary school data, PPC-II is significantly correlated with all four key measures of family stability. SCB-III is also significantly correlated with the first three.

(b) Intellectual-academic variables. We made no predictions concerning the effect of family stability on intellectual-academic functioning. None of the correlations were significant.

7. Indices of social class. The data are shown in Table 21.

(a) Social-emotional variables. We made no predictions concerning the relation of socio-economic to social-emotional variables. In our previous research with Day Care children, we have found no significant correlations between the two. For the Day Care measures, only two of twenty correlations with indices of social class are significant, both at the .05 level, which is essentially a random result. None of the elementary school measures of social-emotional functioning are correlated with education (of head of household, or of mother) or occupation (of head of household). PPC-I, PPC-II, SCB-II, and SCB-III, however, are significantly correlated with family income and source of income (which are themselves correlated, $r = -.42$). These data suggest, as a hypothesis for further research, that family income or whatever it reflects becomes an increasingly important factor in a child's social-emotional functioning as he grows older.

(b) Intellectual-academic variables. While we made no predictions concerning the relation of socio-economic variables and social-emotional variables, we did expect socio-economic variables to be related to our measures of intellectual functioning. A number of studies have shown that intellectual functioning is related to environmental stimulation, and that cognitively relevant stimulation is less likely to occur in lower than in middle or upper class homes. The data show that education (of head of household or of mother) and occupation are significantly

related to the MRT, and that occupation and source of family income are related to the EAR.

The hypotheses involving family stability, on the one hand, and the indices of social class, on the other, are of considerable theoretical importance. The former was hypothesized to have more effect on social-emotional than on intellectual-academic variables, and the latter was hypothesized to have more effect on intellectual-academic variables than on social-emotional variables. As indicated above, our data suggest that socio-economic variables are not related to social-emotional functioning in Day Care, but that family income may be related to social-emotional functioning in first grade. On the other hand, education and occupation of the parents, though not family income, seem to have a significant effect on the MRT, which is the more objective of our measures of intellectual functioning. In a later phase of data processing, we will be performing a multiple regression analysis of the data, and hope to obtain further evidence concerning the effect of family stability and indices of social class on our social-emotional and intellectual-academic variables.

D. Prediction of Social-Emotional Functioning and Intellectual Functioning from School Characteristics

It is reasonable to assume that schools differ in their characteristics, and that these characteristics are influential environmental variables for a child, affecting his social-emotional and intellectual functioning. We did not plan a systematic study of the schools attended by the sample children, which

was not within the scope of the study; however, we were able to obtain some of the data which the New York City Board of Education collects, annually, on public schools. These data are:

(a) Total population of the school

(b) Average first grade enrollment

(c) Ethnic distribution (Negro, Puerto Rican, other)

(d) Building utilization (over-, normal-, and under-utilization of the plant)

(e) Third grade reading average

(f) Fifth grade reading average

In a general way, these data reflect the quality of the school environment in the various schools. We assume that the quality of the school environment has a relation to children's social-emotional and intellectual functioning, (1) through the operation of selective factors--"better" schools being located in higher socio-economic areas, and (2) through direct influence. It was not expected that school characteristics would have a strong effect on children's functioning as early as first grade, but over time the effects should emerge.

Table 22 shows the correlations between school characteristics and the measures of social-emotional and intellectual functioning used in the study. Seven of the 96 correlations are significant, which may be a random pattern. The data, so far as it goes, suggests that the EAR is affected by the quality of the school, with teachers from "better schools (higher percentage of White students, higher third and fifth grade reading average) tending to give

lower ratings to children from our Day Care sample. There is also a cluster of correlations between PSF-II and the third and fifth grade reading averages, which suggests, tentatively, that the more cooperative and compliant children tend to go to better schools. In addition there is an indication that children with somewhat higher MRT scores go to schools with higher reading averages.

Taken in their totality, these findings do not lend strong support to either the selectivity or the "school effects" hypothesis. Over time, however, we would predict that the qualities of the school environment would have measurable effects on the children's social-emotional and intellectual functioning, with the children attending better schools ranking lower on measures of pathology (particularly measures of Apathy-Withdrawal) and higher on measures of intellectual functioning.

IV. SUMMARY AND CONCLUSIONS

This paper has reported our findings on one phase of the work carried out under NIMH #13588. Three hundred twenty three children whose social-emotional functioning had been previously rated in Day Care were "followed" 12 and 18 months later into the first grade of elementary school.

Two major aims were pursued in this study:

(a) to determine the longitudinal persistence of two major personality dimensions, namely Factor I, Apathy-Withdrawal vs. Interest-Participation and Factor II, Anger-Defiance vs. Conformity-Compliance;

(b) to test the hypothesis that the social-emotional functioning of the preschool child is predictive of later intellectual-academic performance.

Specifically, we predicted a relationship between Apathy-Withdrawal (Factor I) and poor academic achievement. In contrast, Anger-Defiance (Factor II) was predicted to be unrelated to the academic measures at early levels of elementary school.

The subjects were rated by their teachers in Day Care on the KPC and KSC scales, and Factor I and II scores were obtained. At follow-up in first grade they were rated by their elementary school teachers on the SCB and PPC scales whose Factor I and II scores were presumed to be congruent with the preschool measures. SCB also yields a third factor (SCB-III, Task Orientation). SCB-III is, however, not a completely independent factor; it has a moderate

correlation with SCB-II (r = .52). First grade teachers also rated children's academic performance in class. For children attending the NYC public schools, school readiness test scores (MRT) were obtained.

The results confirmed the first major hypothesis predicting longitudinal persistence of the two major dimensions of social-emotional functioning in children. Subjects rated high (or low) on Factor I or Factor II on the preschool instruments received similar scores on the comparable dimensions on the first grade instruments. Confirmation of the longitudinal hypothesis simultaneously confirmed our expectations of congruence between factors measured on the preschool and elementary school instruments.

Congruence was further demonstrated by the relatively high correlations between matching factor scores given at the same time (preschool KPC vs. KSC and first grade PPC vs. SCB -- r's ranged from .63 to .82).

Several conditions attenuated the magnitude of the longitudinal correlations:

(a) the use of congruent but nevertheless different instruments used to evaluate persistence of the personality trends.

(b) the discontinuity for the children with respect to the type of setting and new type of demands made upon them as they shifted from Day Care (pre-school) to elementary school.

(c) the different frames of reference and criteria used by the primary grade as compared with pre-school

teachers.

(d) the 12 to 18 month time gap separating the administration of the two "sets" of instruments (KPC, KSC and PPC, SCB) presumed to be congruent.

Current and future data analysis will permit comparisons of these findings with those obtained from within one setting using only one set of instruments (KPC, KSC, within Day Care) over the same time period (1 year to 18 months). This will permit evaluation of longitudinal persistence of personality dimensions under less variable conditions of measurement. Further follow-up studies of the same subjects with the SCB and PPC in later school grades could provide similar comparative data.

With respect to the second major aim of the study, the results confirm the hypothesis that one type of disturbed social-emotional functioning, Apathy-Withdrawal (Factor I) is predictive of deficient intellectual functioning. This relationship was demonstrated both longitudinally, from preschool social-emotional measures to first grade achievement measures, and cross-sectionally from first grade social-emotional to first grade academic measures. The first grade measure of Task Orientation (SCB-III) was also found to be highly related to first grade academic success.

As predicted, preschool measures of Factor II (Anger-Defiance) were unrelated to the first grade academic measures. First grade measures of Factor II were significantly related to academic measures, contrary to prediction, but the relationships were lower than for Factor I measures. The moderate increase in the predictive power of

the first grade Factor II scores over the preschool Factor II measures with respect to school achievement may be due to the high correlation of first grade Factor II scores with SCB-III Task Orientation. However, an alternative explanation may be that the more structured teaching climate prevailing in first grade, a negative, counterproductive teacher-child relationship is engendered by the child's Angry-Defiant behavior. New data consisting of second grade achievement test scores remain to be collected for these subjects. We expect the pattern of relationships between Factors I, II, and III and this later measure of intellectual functioning to shed more light on the problem.

A number of hypotheses were tested about the relationship of selected background-demographic variables to social-emotional and intellectual functioning. In a more stringent analysis, currently under way, we are using the background variables as control variables, to determine the effect of social-emotional factors on intellectual-academic achievement with the background variables partialed out.

The major background variables for which data were collected are as follows: age, sex, ethnic background, number of siblings, family intactness and stability, parental occupational and educational levels, income. The following results were obtained:

1. Age. For this age-restricted group, we found no relationships between this variable and the dependent variables.

2. Sex. Boys were consistently rated in both Day Care and first grade as more poorly functioning on both personality dimensions than girls particularly, as expected, on Factor II (Anger-Defiance).

First grade teachers also tended to rate boys as lower in academic standing than girls; however, this seems to be a biased view since the more objective measure of the MRT showed only a minimal and non-significant relationship to sex.

3. Ethnic background. This variable was unrelated to the measures of social-emotional functioning; with respect to the intellectual measures, ethnic differences were minimally significant. Puerto Rican children were least achieving on the MRT probably due to language difficulties. The academic ratings by the teachers are unrelated to the ethnic differences between subjects.

4. Larger size of family. Number of sibs was found to be predictive of higher Apathy-Withdrawal for both preschool and first grade measures. Number of sibs was also found to be associated with poorer academic achievement, confirming an adverse relationship described in many other studies of disadvantaged children.

5. Family intactness and stability. Family instability (broken homes) predicted Factor II Anger-Defiance both for the preschool and first grade ratings. This finding is in line with much that is known of the backgrounds of acting-out and delinquent children. This measure was also correlated with the first grade measure SCB-III Task Orientation. Family intactness-stability was found to be unrelated, however, to the academic measures.

6 & 7. Parental occupational and educational levels. These variables were among the most predictive of intellectual achievement; however, they were unrelated to the social-emotional measures. These background factors probably reflect the extent of cultural opportun-

ities, and early learning stimulation experienced by the child, thus influencing his own level of achievement.

8. Family Income. This variable, in sharp contrast to the other social class indicators, was found to be uncorrelated with the academic achievement measures, but was predictive of first grade social0emotional functioning (lower income, more disturbance). However, this is apparently an artifact in our Day Care (primarliy working mother) sample. Income is highly correlated with measures of family intactness (intact family and higher income $\underline{x}$ = .58). As we have seen above, family intactness itself is an important predictor of social-emotional functioning.

An overview of these results indicates that social class measures are predictive of academic achievement in general but are not related to the social-emotional variables. Conversely, measures of family instability are predictive of social-emotional disturbance but are not indicative of intellectual-academic failure, at least at this age level. (An additional speculation may be suggested that background factors associated with Factor I (Apathy-Withdrawal) are predictive of intellectual measures while others associated with Factor II (Anger-Defiance) are not. Further research is needed to substantiate this suggestion.)

School Characteristics. One additional set of environmental variables, demographic and academic characteristics of the school attended were also examined. The results for this sample indicate little or no association between the social-emotional and intellectual characteristics of the subjects and these quantitative measures of

the quality of the school environment. Thus, neither selective factors with respect to school readiness or social-emotional functioning in assigment of children to schools, nor school influence upon the children's functioning can be substantiated at the first grade level. Given this sort of "even start", a further longitudinal study of these children would enable us to document the progressive shaping of the child to the school's characteristics over time.

In conclusion, we have demonstrated in this study:

(a) the longitudinal persistence in young children of two major dimensions of personality

(b) the feasibility of measuring these behavior dimensions with a set of congruent instruments using the resource of the group or elementary school teacher's knowledge of the child, and

(c) the successful prediction of subsequent social-emotional and intellectual functioning from preschool measures.

Future analyses controlling relevant background-demographic variables will refine and enhance the power of these predictions. Such predictive measures would facilitate large scale screening and early identification of children with social-emotional handicaps specific to later learning and emotional disorders. Finally, the study has demonstrated the feasibility of large scale longitudinal studies.

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TABLE 2

BACKGROUND-DEMOGRAPHIC CHARACTERISTICS OF SUBJECTS
(N = 1240)*

		N	%
	AGE		
GROUP A:	Eligible for First Grade, Sept., 1968 (5 at R1)	428	34.5
GROUP B:	Eligible for First Grade, Sept., 1969 (4 at R1)	463	38.0
GROUP C:	Eligible for First Grade, Sept., 1970 (3 at R1)	349	27.5
	SEX		
	Male	632	51.0
	Female	608	49.0
	MARITAL STATUS OF PARENTS		
	Both parents in home	615	49.6
	Divorced or separated	424	34.2
	Single parents	121	9.8
	One parent dead	36	2.9
	One parent deserted	22	1.8
	Other	21	1.7
	No information	1	0.1
	HEAD OF HOUSEHOLD		
	Father	647	52.2
	Mother	554	44.7
	Other	39	3.1
	RACE		
	Negro	692	55.8
	Puerto Rican	194	15.6
	White	335	27.0
	Other	18	1.5

* Background-Demographic data obtained for 1240 Ss, though only 1232 Ss were in the Rating 1 sample.

TABLE 2 (continued)

BACKGROUND-DEMOGRAPHIC CHARACTERISTICS OF SUBJECTS

EDUCATION LEVEL OF HEAD OF HOUSEHOLD	N	
Less than 7 years schooling	107	[illegible]
Completed 9th Grade	104	[illegible]
Some High School	345	[illegible]
Completed High School	457	[illegible]
College (1 to 3 years)	121	[illegible]
Completed College	31	2.5
Graduate Education	3	0.2
No Information	71	5.7
Not Applicable	1	0.1
INCOME LEVEL OF FAMILY		
Less than $1000	0	0.0
$1000 - 2000	17	1.4
$2000 - 3000	100	8.1
$3000 - 4000	189	15.2
$4000 - 5000	243	19.6
$5000 - 6000	212	17.1
$6000 - 7000	145	11.7
Over $7000	331	26.7
No Information	3	0.3
SOURCE OF INCOME		
Welfare Assistance	234	18.9
Other forms of assistance or income (such as alimony, insurance, social security, etc.)	168	13.5
No Information	6	0.5
Family income only	832	67.1

TABLE 3

TOTAL SAMPLE AS OF R1 (NOVEMBER, 1967)

Ss not eligible for First Grade until September, 1970	=	341
Ss not eligible for First Grade until September, 1969	=	463
Ss eligible for First Grade as of September, 1968.	=	428
		1232

ATTRITION OF FIRST GRADE SAMPLE
AS OF R4 (MAY, 1969)

First Grade Ss unavailable for R4	(N = 105)
Moved	16
Unlocated	52
Teacher refused	32
Parents refused	3
Principals refused	2
	105

First Grade Sample (Ss rated at R4)	(N = 323)
Ss in Public School	237
Ss in Parochial School	68
Ss in Private School	18
	323

TABLE 4

POOLED SCALED FACTOR SCORES OF THOSE SUBJECTS IN THE FIRST GRADE SAMPLE AND THOSE SUBJECTS ELIGIBLE FOR FIRST GRADE BUT UNAVAILABLE

		N	M	SD	
PSF-I	Ss In Sample	323	-.0935	1.840	p = .44
	Ss Not Available	105	.0840	2.023	t = .780
PSF-II	Ss In Sample	323	-.0376	1.971	p = .57
	Ss Not Available	105	.1790	2.305	t = .570

TABLE 5

INTERRATER RELIABILITY AND
ESTIMATED POOLED TEACHER RELIABILITY

	RATING 1 (Present study) (N = 1240)		RATING 2 (Present study) (N = 1079)		PRIOR STUDY #10341 (Kohn, 1968) (N = 407)	
	HT vs. AT Reliability	Estimated PT Reliability	HT vs. AT Reliability	Estimated PT Reliability	HT vs. AT Reliability	Estimated PT Reliability
KSC-I	.59	.74	.55	.71	.62	.77
KSC-II	.61	.76	.63	.77	.66	.80
KPC-I	.53	.69	.36	.53	.57	.73
KPC-II	.63	.77	.53	.69	.57	.73

TABLE 6

POOLING OF SCORES AND RATINGS
DAY CARE INSTRUMENTS

Pooling of data from the two Kohn day care instruments follows this pattern for each rating occasion:

RAW DATA		PT RAW SCORES		PT Z SCORES		POOLED SCALED FACTOR SCORES
HT - KPC-I AT - KPC-I	=	PT - KPC-I	=	PT - KPC-I	=	PSF-I
HT - KSC-I AT - KSC-I	=	PT - KSC-I	=	PT - KSC-I	=	PSF-I
HT - KPC-II AT - KPC-II	=	PT - KPC-II	=	PT - KPC-II	=	PSF-II
HT - KSC-II AT - KSC-II	=	PT - KSC-II	=	PT - KSC-II	=	PSF-II

In this chart, the first two columns represent raw or pooled raw factor scores, and the second two columns represent Z-scores or pooled Z-scores.

TABLE 7

CROSS-INSTRUMENT CORRELATIONS
OF POOLED TEACHER SCORES

	RATING 1		RATING 2	
	PT-KSC-I	PT-KSC-II	PT-KSC-I	PT-KSC-II
PT-KPC-I	-.74	-.22	-.69	-.24
PT-KPC-II	-.26	-.82	-.29	-.81

TABLE 8

CROSS-FACTOR CORRELATIONS
WITHIN SCALES

	RATING 1	RATING 2
PT-KSC-I vs. II	.47	.40
PT-KPC-I vs. II	.18	.31
PSF-I vs. II	.32	.37

TABLE 9

ESTIMATE RELIABILITY OF
POOLED SCALED FACTOR SCORES

	RATING 1 (Present Study)	RATING 2 (Present Study)	PRIOR STUDY (Kohn, 1968)
PSF - I	.83	.76	.85
PSF - II	.87	.84	.89

TABLE 10

SCHEDULE OF DATA COLLECTION

GROUP A (Age 5 at R1; Eligible for First Grade, Sept., 1968)

R1 (Nov., 1967)	R2 (May, 1968)	R3 (Nov., 1968)	R4 (May, 1969)
KSC	KSC	MRT	PPC
KPC	KPC		SCB
BDF			EAR
			SCF
N = 428	N = 382		N = 323

TABLE 11

DAY CARE SOCIAL-EMOTIONAL VARIABLES VS.
FIRST GRADE SOCIAL-EMOTIONAL VARIABLES

(N > 300)

	Peterson		Schaefer		
	PPC-I	PPC-II	SCB-I	SCB-II	SCB-III
A. Pooled Scaled Scores					
R1 - PSF-I	.28****	.12*	-.34****	-.13**	-.15***
R1 - PSF-II	.07	.39****	.07	-.32****	-.33****
R2 - PSF-I	.28****	.11	-.32****	-.14**	-.09
R2 - PSF-II	.08	.40****	.01	-.35****	-.32****
B. Separate Scale Scores					
R1 - KPC-I	.24****	.05	-.34****	-.11	-.07
R1 - KPC-II	.03	.35****	.09	-.30****	-.28****
R1 - KSC-I	-.28****	-.16	.30****	.13	.20****
R1 - KSC-II	-.11	-.39****	-.05	.32****	.34****
R2 - KPC-I	.23****	.04	-.30****	-.12*	-.03
R2 - KPC-II	.06	.37****	.02	-.32****	-.29****
R2 - KSC-I	-.29****	-.16***	.29****	.14**	.13**
R2 - KSC-II	.10	-.40****	.00	.34****	.32****

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 12

WITHIN DAY CARE AND WITHIN FIRST GRADE SOCIAL-EMOTIONAL FUNCTIONING

Part A WITHIN DAY CARE

Kohn Social Competence vs. Kohn Problem Factors

N > 300

	Rating 1		Rating 2	
	PT - KSC-I	PT - KSC-II	PT - KSC-I	PT - KSC-II
PT - KPC-I	-.74	-.22	-.69	-.24
PT - KPC-II	-.26	-.82	-.29	-.81

Part B WITHIN FIRST GRADE

Schaefer Classroom Behavior Inventory vs. Peterson Problem Checklist

N > 300

	SCB-I	SCB-II	SCB-III
PPC-I	-.63	-.40	-.33
PPC-II	-.10	-.69	-.74

TABLE 13

DAY CARE SOCIAL-EMOTIONAL VARIABLES VS. FIRST GRADE INTELLECTUAL-ACADEMIC FUNCTIONING

	METROPOLITAN READING READINESS TEST (N > 175)							(EAR) Teachers' Global Academic Rating
	Word Meaning	Listening	Matching	Alphabetical	Numbers	Copying	Total Raw Score	
	RATING 1 (N > 175)							(N > 300)
R1 - PSF-I	-.09	-.26****	-.26****	-.26****	-.32****	-.08	-.33****	-.34****
R1 - PSF-II	.00	-.01	-.13	-.07	-.15	-.09	-.14	-.1?**
	RATING 2 (N > 175)							(N > 200)
R2 - PSF-I	-.16*	-.27****	-.18**	-.25****	-.34****	-.18*	-.33****	-.32****
R2 - PSF-II	.01	-.01	-.04	-.10	-.10	-.04	-.09	-.12

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 14

FIRST GRADE SOCIAL-EMOTIONAL VARIABLES VS.
FIRST GRADE INTELLECTUAL-ACADEMIC FUNCTIONING

METROPOLITAN READING READINESS TEST (N > 175)

	Word Meaning	Listening	Matching	Alphabetical	Number	Copying	Total Raw Score	Pooled Teachers' Global Academic Rating (N > 300)
PPC-I	-.08	-.17*	-.23***	-.28***	-.34****	-.09	-.33****	-.43****
PPC-II	-.09	-.11	-.19**	.18**	-.21***	-.05	-.23***	-.35****
SCB-I	.10	.33****	.15*	.25****	.31****	.10	.33****	.42****
SCB-II	.07	.18**	.19**	.17*	.18**	.04	.22***	.27****
SCB-III	.09	.22***	.30****	.32****	.32****	.20	.36****	.48****

*p < .05
**p < .02
***p < .01
****p < .001

TABLE 15

AGE VS.

DAY CARE SOCIAL-EMOTIONAL FUNCTIONING, ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING AND ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING.
(N = 300 except as noted)

		CORRELATION BETWEEN VARIABLE AND AGE IN MONTHS AT R1
A.	DAY CARE SOCIAL-EMOTIONAL FUNCTIONING	
	R1 - PSF-I	-.09
	R1 - PSF-II	.07
	R2 - PSF-I	-.05
	R2 - PSF-II	.08
B.	ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING	
	PPC-I	-.08
	PPC-II	-.05
	SCB-I	.12*
	SCB-II	.01
	SCB-III	.11
C.	ELEMENTARY SCHOOL' INTELLECTUAL-ACADEMIC FUNCTIONING	
	MRT	.14 (N = 175)
	EAR	.11

* $p < .05$

** $p < .02$

*** $p < .01$

**** $p < .001$

TABLE 16

SEX VS.
DAY CARE SOCIAL-EMOTIONAL FUNCTIONING
ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING, AND
ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING
($N > 300$ except as noted)

		CORRELATION BETWEEN VARIABLE AND SEX (MALE = 1, FEMALE = 2)
A.	DAY CARE SOCIAL-EMOTIONAL FUNCTIONING	
	R1 - PSF-I	-.11
	R1 - PSF-II	-.16***
	R2 - PSF-I	-.12*
	R2 - PSF-II	-.18***
B.	ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING	
	PPC-I	-.10
	PPC-II	-.24****
	SCB-I	.14**
	SCB-II	.17***
	SCB-III	.24****
C.	ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING	
	MRT	.12 ($N > 175$)
	EAT	.27****

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 17

ETHNIC BACKGROUND VS.
DAY CARE SOCIAL-EMOTIONAL FUNCTIONING,
ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING, AND
ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING

(N > 300 EXCEPT AS NOTED)

A. DAY CARE SOCIAL-EMOTIONAL FUNCTIONING	Negro[1] vs. other	Puerto Rican[2] vs. other	White and Oriental[3] vs. other
R1 - PSF-I	-.03	.03	.01
R1 - PSF-II	-.02	.01	.01
R2 - PSF-I	-.07	.00	.07
R2 - PSF-II	-.03	.01	.03
B. ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING			
PPC-I	.04	.04	-.09
PPC-II	-.05	.04	.02
SCB-I	-.02	.00	.02
SCB-II	.15***	-.03	-.14**
SCB-III	.06	.01	.07
C. ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING			
MRT (N > 175)	.01	.17*	-.16*
EAR	.00	.08	.06

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

[1] Negroes coded 1, all others coded 2.

[2] Puerto Ricans coded 1, all others coded 2.

[3] Whites & Orientals coded 1, all others coded 2.

TABLE 18

DAY CARE ATTENDANCE

DURATION DAY CARE VS.
DAY CARE SOCIAL EMOTIONAL FUNCTIONING
ELEMENTARY SCHOOL SOCIAL EMOTIONAL FUNCTIONING
ELEMENTARY SCHOOL INTELLECTUAL ACADEMIC FUNCTIONING
(N >300 Except as Noted)

		Correlations between variables and duration in Day Care
A. Day Care Social Emotional Functioning		
R1	PSF-I	-.15***
RI	PSF-II	.18***
R2	PSF-I	-.12*
R2	PSF-II	.11
B. Elementary School Social Emotional Functioning		
PPC-I		-.03
PPC-II		.04
SCB-I		.09
SCB-II		-.03
SCB-III		-.06
C. Elementary School Intellectual Academic Functioning		
MRT		.14 (N >175)
EAR		.02

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 19

NUMBER OF SIBLINGS VS.
DAY CARE SOCIAL-EMOTIONAL FUNCTIONING, AND
ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING, AND
ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING

(N > 300 except as noted)

		CORRELATION WITH NUMBER OF SIBLINGS	
A.	DAY CARE SOCIAL-EMOTIONAL FUNCTIONING		
	R1 - PSF-I	.17***	
	R1 - PSF-II	-.08	
	R2 - PSF-I	.14**	
	R2 - PSF-II	-.10	
B.	ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING		
	PPC-I	.09	
	PPC-II	.03	
	SCB-I	-.15***	
	SCB-II	-.08	
	SCB-III	-.02	
C.	ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING		
	MRT	-.15*	
	EAR	-.20***	(N > 175)

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 20

FAMILY STABILITY VS.
DAY CARE SOCIAL-EMOTIONAL FUNCTIONING,
ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING, AND
ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING

(N > 300 EXCEPT AS NOTED)

	Marital Status[1]	Head of Household[2]	Rated Family Stability[3]	Mother ill[4]	Father ill[5]	
A. DAY CARE SOCIAL - EMOTIONAL FUNCTIONING						
R1 - PSF-I	-.09	-.09	-.09	.01	.06	(N > 175)
R1 - PSF-II	.16***	.19***	-.16***	.13*	-.05	(N > 175)
R2 - PSF-I	-.03	-.05	-.09	.01	-.03	(N > 175)
R2 - PSF-II	.17***	.17***	-.10	.21****	-.09	(N > 175)
B. ELEMENTARY SCHOOL SOCIAL-EMOTIONAL FUNCTIONING						
PPC-I	.04	.02	-.22****	.12*	.01	(N > 175)
PPC-II	.13*	.14**	-.18***	.13*	-.07	(N > 175)
SCB-I	.01	.03	.11	.00	-.03	(N > 175)
SCB-II	-.10	-.11	.16***	-.06	.10	(N > 175)
SCB-III	-.16***	-.19***	.16***	.08	.10	(N > 175)
C. ELEMENTARY SCHOOL INTELLECTUAL-ACADEMIC FUNCTIONING						
MRT	.14	(N > 175) .13 (N > 175)	.04	(N > 175) -.04	(N > 175) -.14	(N > 100)
EAR	.06	.04	.08	-.05	-.07	(N > 160)

TABLE 20, CONTINUED

* $p < .05$

** $p < .02$

*** $p < .01$

**** $p < .001$

[1] Coded 1 if both parents in home, otherwise coded 2.

[2] Coded 1 if father head of house, 2 if mother head of house, and deleted from correlation if other head of house.

[3] Day Care Counselor rated the stability of the family, in the child's first two years of life, on a five-point scale from 1 (unstable) to 5 (stable).

[4] Coded 1 if mother chronically ill, 0 if mother not chrohically ill, and dropped from correlation if inapplicable.

[5] Coded 1 if father chronically ill, 0 if father not chronically ill, and dropped from correlation if inapplicable.

TABLE 21

SOCIO-ECONOMIC VARIABLES VS.
DAY CARE SOCIAL EMOTIONAL FUNCTIONING
ELEMENTARY SCHOOL SOCIAL EMOTICNAL FUNCTIONING, AND
ELEMENTARY SCHOOL INTELLECTUAL ACADEMIC FUNCTIONING

(N > 300 EXCEPT AS NOTED)

	Education: Head of Household[1]	Education: Mother[1]	Occupation: Head of Household[2]	Family Income[3]	Source of Family Income[4]
A. Day Care Social-Emotional Functioning					
R1 - PSF - I	-.10	-.12*	.02 (N > 200)	-.06	.09
R1 - PSF - II	.03	-.04	-.03 (N > 200)	-.13*	.09
R2 - PSF - I	-.06	-.11	.02 (N > 200)	-.02	.10
R2 - PSF - II	.03	-.04	-.04 (N > 200)	-.11	.07
B. Elementary School Social-Emotional Functioning					
PPC - I	.00	-.02	.11	-.21****	.17***
PPC - II	.03	-.04	.03	-.13*	.14**
SCB - I	.00	.01	.05	.07	-.09
SCB - II	-.06	-.02	.01	.12*	-.17***
SCB - III	.03	.05	-.10	.13*	-.19****
C. Elementary School Academic-Intellectual Functioning					
MRT (N > 175)	.22***	.27****	-.32****	.03	-.10
EAR	.02	.09 (N > 200)	-.17* (N > 200)	.01	-.18***

TABLE 21 CONTINUED

[1] A seven point scale, based on last grade completed, from 1 (under 7 years schooling) to 7 (some graduate education).

[2] A nine point scale, based on Hollingshead's system of occupational classification, from 1 (professional or technical) to 9 (housewife only).

[3] An eight point scale, from 1 (under $1000 gross annual income) to 8 (over $7000 gross annual income).

[4] Coded 0 if no income from welfare assistance, otherwise coded 1.

TABLE 22

ELEMENTARY SCHOOL CHARACTERISTICS VS. DAY CARE SOCIAL-EMOTIONAL FUNCTIONING, FIRST GRADE SOCIAL-EMOTIONAL FUNCTIONING, AND FIRST GRADE INTELLECTUAL-ACADEMIC FUNCTIONING.
(N > 200 EXCEPT AS NOTED)

	School Population (# of students)	Percentage of White Students	Average First Grade Size	Percentage of Building Utilized	3rd Grade Reading Average	Fifth Grade Reading Average
A. Day Care Social-Emotional Functioning						
R1 - PSF-I	.02	-.02	-.03	.04	-.08	-.07
R1 - PSF-II	.06	-.12	-.09	.02	-.15*	-.17**
R2 - PSF-I	.04	-.02	.00	.09	.00	-.04
R2 - PSF-II	.05	-.06	-.10	.01	-.06	-.13*
B. Elementary School Social-Emotional Functioning						
PPC-I	-.05	.09	.11	-.02	.03	.12
PPC-II	-.06	.03	.04	-.07	.03	.03
SCB-I	-.01	-.10	-.03	-.07	-.03	-.08
SCB-II	.08	.05	.04	.08	.02	-.04
SCB-III	.00	-.08	-.06	.04	-.03	-.05
C. Elementary School Intellectual-Academic Functioning						
MRT (N > 175)	-.08	.08	.11	.00	.15*	.11
EAR	.11	-.18**	-.08	.09	-.15**	-.21***

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .001$

TABLE 1

ABBREVIATIONS USED IN THE STUDY

DAY CARE INSTRUMENTS

KSC — Kohn Social Competence Scale. A 73-item scale assessing children's competence in Day Care, with two major factors:
I - Interest - Participation vs. Apathy - Withdrawal
II - Cooperation-Complaince vs. Anger-Defiance

KPC — Kohn Problem Checklist. A 51-item scale for assessing childrens' behavior problems in Day Care, with two major factors:
I - Apathy-Withdrawal
II - Anger-Defiance

BDF — Background Data Form. A questionnaire used for obtaining information about children's family backgrounds.

ELEMENTARY SCHOOL INSTRUMENTS

PPC — Peterson Problem Checklist (Peterson, 1961). A item scale for assessing problems in elementary school children; with two major factors, congruent with KPC and KPC-II.

SCB — Schaefer Classroom Behavior Inventory (Schaefer 1969). A 60-item scale for assessing classroom behavior in elementary school children, with two major factors congruent with KSC-I and KSC-II. A third factor assesses "task orientation."

EAR — Elementary School Academic ratings. Teachers' ratings of children's academic competence.

MRT — Metropolitan Reading Readiness Test. A test ing readiness administered early in first grade in York City public schools.

OTHER ABBREVIATIONS

R — Rating Occasion:
R1 = Nov., 1967 R3 = Nov., 1968
R2 = May , 1968 R4 = May , 1969

HT , AT — Designation of teacher making ratings: Head Teacher (HT) or Assistant Teacher (AT).

PT — Pooled Teacher ratings or scores, derived by combining HT and AT ratings or scores.

PSF — Pooled Scale Factor Scores, obtained by combining KPC-I with KSC-I and KPC-II with KSC-II.